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June 3, 1996

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By Hand Delivery

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: *Ex Parte* Presentation in
CC Docket No. 92-297

Dear Mr. Caton:

In a letter filed on this date, several parties to the above-referenced rulemaking proceeding joined in urging the Commission to act promptly to conclude the ongoing rulemaking proceeding by adopting the segmentation plan for the 27.5-30.0 GHz band that it had proposed in its July 1995 Third NPRM, "as supplemented by the interservice sharing rules that have been agreed to subsequently."[1/] TRW's initial comments on the Third NPRM identified the plan as being a rational solution to a difficult regulatory circumstance, and articulated sharing principles that evolved into the post-NPRM understandings and statements of principles that were referenced in the Joint Letter. Because the filers of the Joint Letter represent a cross-section of all of the competing service interests in the ongoing rulemaking proceeding, TRW Inc. ("TRW") hereby

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1/ June 3, 1996 "Joint Letter" at 2.

states that it views the submission as a positive development that should assist the Commission in its ongoing deliberations.

Following the Third NPRM, TRW — the permittee of a nongeostationary mobile-satellite service ("NGSO MSS") system that will use spectrum in the subject bands for its feeder links — has been extremely proactive in developing sharing criteria to govern the interservice and intraservice sharing relationships that it would encounter with the local multipoint distribution service ("LMDS"), the NGSO MSS system conditionally authorized to Motorola Satellite Communications, Inc. ("Motorola"), and applicants for geostationary fixed-satellite service ("GSO FSS") systems.[2/] TRW developed a set of sharing principles that would govern sharing between TRW's NGSO MSS system and GSO FSS systems in the 29.25-29.5 GHz and 19.3-19.7 GHz bands, and has articulated principles that should enable the TRW and Motorola NGSO MSS systems successfully to share the spectrum within which both will operate. To accommodate LMDS, TRW committed to locate its two U.S. feeder link earth station complexes in smaller markets. TRW will accept LMDS operations even in those markets, subject to an obligation that LMDS stations would not be entitled to interference protection when they are within 40 kilometers of a TRW earth station.

A Commission decision to adopt the band segmentation plan proposed in the Third NPRM — as suitably modified to contemplate that TRW's NGSO MSS feeder link system would share spectrum codirectionally with Motorola at 29.1-29.25 GHz and in the companion downlink band at 19.3-19.7 GHz, and with GSO FSS systems at 29.25-29.5 GHz — would be acceptable to TRW.[3/] These band-specific sharing arrangements are set out in reasonably succinct fashion in a Commission handout from the February 16, 1996 Status Conference in this proceeding. Although these principles

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2/ Under the various band plan options that have been proposed or floated in recent months, TRW NGSO MSS system would share portions of the 29.1-29.5 GHz and 19.3-19.7 GHz bands with at least two, and usually all three, of those types of providers.

3/ As TRW has informed the Commission, the suggestion in the Third NPRM that "reverse-band working" in the 19 GHz band presented a possible spectrum solution for TRW is now completely infeasible as a consequence of actions taken at last Fall's 1995 World Radiocommunication Conference.

correspond on their face to a band plan option that differs from the one proposed in the Joint Letter, they are accurate as to the specific intraservice case between TRW and Motorola, and for the interservice case between TRW and GSO/FSS providers. A copy of these principles is attached for ready reference.

Again, it is TRW's view that the broad representation among the signatories of the Joint Letter is a positive, and arguably breakthrough, development. It should be possible for the Commission to release a Report and Order embracing the proposal, and to issue a Further NPRM that explores on an expedited basis the possible allocation of spectrum at 31 GHz for use by LMDS systems that seek to employ subscriber-to-hub links. To the extent that it may speed the resolution of this proceeding, TRW supports the adoption of the band segmentation plan from the Third NPRM, as updated by the sharing principles and other considerations that have been identified by interested parties in the months following the proposal of that plan.

Respectfully submitted,

Stephen D. Baruch
Attorney for TRW Inc.

Attachment
cc: Chairman Hundt
Commissioner Quello
Commissioner Ness
Commissioner Chong
Donald H. Gips
Thomas Tycz
Cecily Holiday
Harry Ng
Karl Kensinger
Jennifer Gilsenan
Giselle Gomez
Roger J. Rusch (by facsimile)

DRAFT

OPTION 4 SHARING PRINCIPLES

1. **29.1 - 29.2 GHz Band - Sharing principles between TRW and Motorola Feeder Links**

a. The two systems will use circular polarization in accordance with coordination agreement. Iridium will operate using right-hand circular polarization and Odyssey will operate using left-hand circular polarization.

b. Both systems will use power control for precipitation and range.

c. Earth station complexes of the two systems will be coordinated when they are separated by less than 800 kilometers.

d. Odyssey system will have a maximum of two feeder link earth stations in the USA and Iridium will have a maximum of six feeder link earth stations in the USA.

1) In the western USA, Iridium will have a feeder link earth station in the immediate vicinity of Phoenix, AZ and Odyssey will have a feeder link earth station in the immediate vicinity of San Luis Obispo, CA.

2) In the eastern USA, Iridium will have a feeder link earth station in the immediate vicinity of Montpelier, VT. The location of an additional Iridium feeder link earth station in the eastern USA shall not be specified until after an Odyssey feeder link earth station site in the eastern USA.

e. Earth station sites for both systems must be chosen [TBD] weeks before the commencement of the LMDS auctions.

2. **29.2 - 29.3 GHz Band - Sharing between TRW and Motorola Feeder Links, Sharing between TRW and Motorola Feeder Links and LMDS in both hub-to-subscriber and subscriber-to-hub directions.**

a. Principles for sharing between TRW and Motorola feeder links will be the same as specified in 1 above.

b. Rules for sharing between MSS feeder links and LMDS in the hub-to-subscriber direction will be those proposed in the Third NPRM, with minor modifications.

c. Rules for sharing between MSS feeder links and LMDS in the subscriber-to-hub

direction will include the following:

LMDS subscriber transceivers:

1) shall not transmit an effective isotropically radiated power (EIRP) in excess of 20 dBW/MHz in clear air and shall reduce EIRP, as a minimum, for distances of less than the maximum LMDS cell radius from the hub in accordance with the following formula:

P(EIRP,dBW/MHz) = 20 dBW/MHz + 20 log(d/D)

where d = transceiver distance to the hub
D = maximum LMDS cell radius to the hub

2) shall not transmit an effective isotropically radiated power in excess of 14 dBW/MHz in clear air if power control in accordance with the formula in 1) above is not used.

3) shall have an antenna pattern with an EIRP on antenna boresight as specified in 1) or 2) above which shall be reduced for angles from boresight in accordance with the following:

Degrees from	Relative Gain/EIRP in dB	
Boresight	Azimuth	Elevation
0	0.00	0.00
1	0.00	0.00
2	-3.25	-3.25
3	-6.25	-6.25
4	-9.50	-9.50
5	-12.75	-12.75
6	-16.00	-16.00
14	-16.00	-16.00
15 to 90	-30.00	-30.00

d. Operation of terrestrial station in the LMDS service within [TBD] km of a non-GSO feeder link earth station are unprotected and could be subject to harmful interference from the licensed earth station.

e. In each LMDS cell at any particular time, transmissions shall be either hub-to-subscriber or subsriber-to-hub direction, but not both.

3. **29.3 - 29.325 GHz Band - Sharing between TRW and LMDS in both hub-to-subscriber and subscriber-to-hub directions.**

a. Sharing between TRW and LMDS in both hub-to-subscriber and subscriber-to-hub directions will be the same as specified in 2 above.

4. **29.325 - 29.4 GHz Band - Sharing principles between TRW and GSO/FSS providers.**

a. The party causing unacceptable interference has primary responsibility to mitigate the interference, but neither system shall be required to disrupt or alter its transmissions.

b. Odyssey will have 2 earth stations in the U.S. one on the east coast and the other on the west coast, operating with left-hand circular polarization as specified in 1 above. GSO/FSS operators will implement beam frequency selection and/or opposite sense of polarization in the vicinity of Odyssey earth station complexes in order to minimize instances of unacceptable interference in a manner that is consistent with their GSO beam footprint.

c. Only NGSO/MSS systems will use the 19.3 - 19.7 GHz band as a companion downlink band to 29.1 - 29.5 GHz on a primary basis.

5. **29.4 - 29.5 GHz Band - Sharing between MSS Feeder Links and GSO/FSS providers.**

a. Use of the band for MSS feeder links will be subject to further sharing and coordination agreements that are acceptable to the affected GSO/FSS parties.

6. **17.7 - ~~19.6~~ 19.7 GHz Band - GSO/FSS Downlink Band Primary**

a. Coordination between FSS and primary fixed service users will be done under existing FSS and fixed service coordination principles, i.e. §§ 21.100(d), 25. 130(b).